



Department of Anesthesia Technique

Title of the lecture: -

Packed Cell Volume

by

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What is PCV?

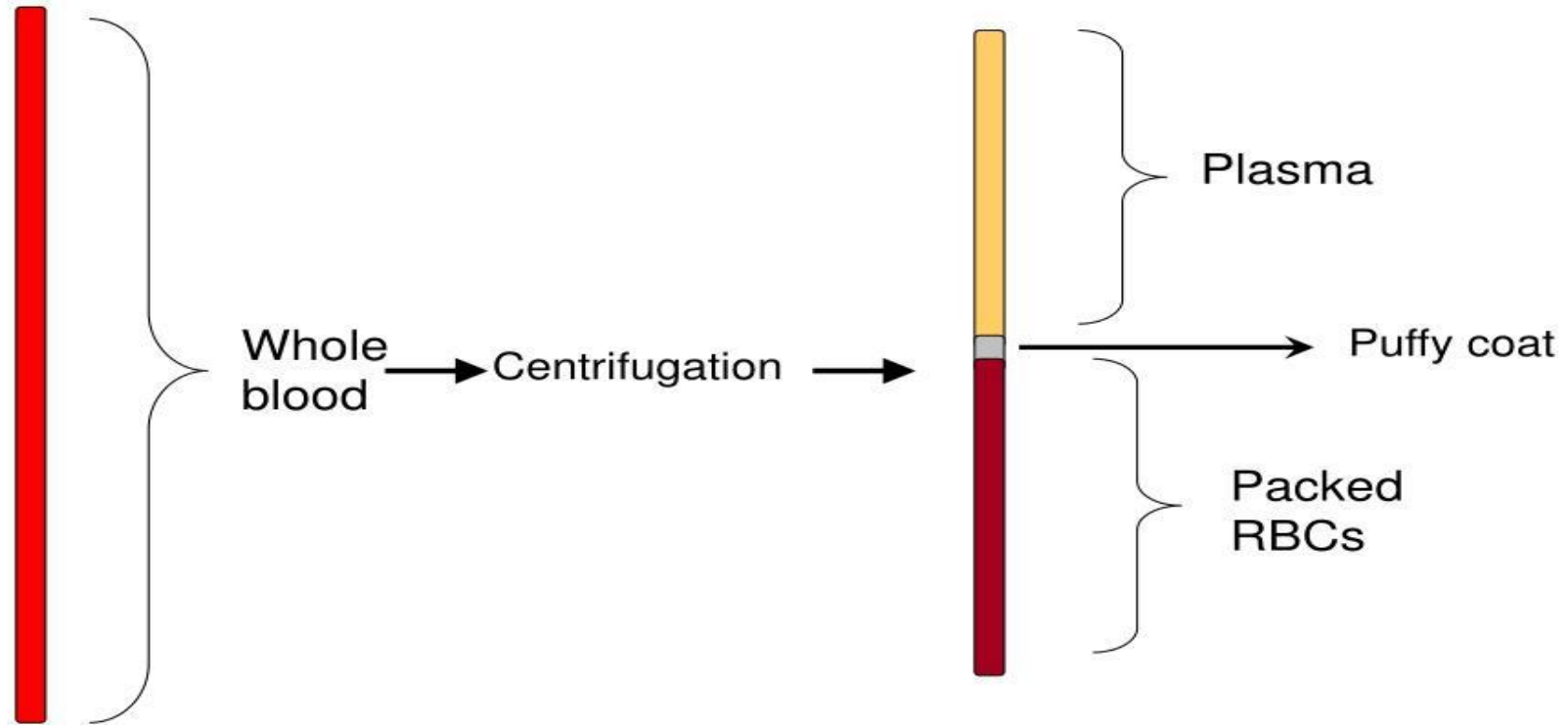
- The percentage by volume of packed red blood cells in a given sample of blood after centrifugation.
- PCV, the volume of packed red cells in milliliters per 100 ml of blood.
- usually reported as the volume percentage (%) of red blood cells in blood.

❖ In a centrifuge blood is separated into three layer including :-

1. The mass of the erythrocytes at the bottom which is referred to as packed corpuscles volume (P.C.V).
2. White or gray layer of leukocytes and thrombocytes immediately above the red corpuscles mass that referred to as the buffy coat.
3. The blood plasma.

PCV

Packed Cell Volume



Apparatus and reagent

- Heparinized Capillary tube
- Microhematocrit centrifuge
- Microhematocrit reader
- Clay



Procedure

- Capillary tube is used
- The capillary is filled with blood to half of the tube , but not filled too much
- Sealing the capillary with clay
- Centrifugation (10000 rpm at two minute)
- Reading the Hct.

Hematocrit Interpretation

1-Increased PCV

- Polycythemia: newborns, high altitude, hypoxia due to lung and heart diseases
- Congestive heart failure, burns (loss of plasma), dehydration, severe exercise.

2- Decreased PCV

- All types of Anemia
- Pregnancy
- Ingestion of large amount of water

Normal value

- Newborn : 53-65%
- Infants/child: 30-43%
- Adult male: 42-52%
- Adult female: 37-47%